

(No Model.)

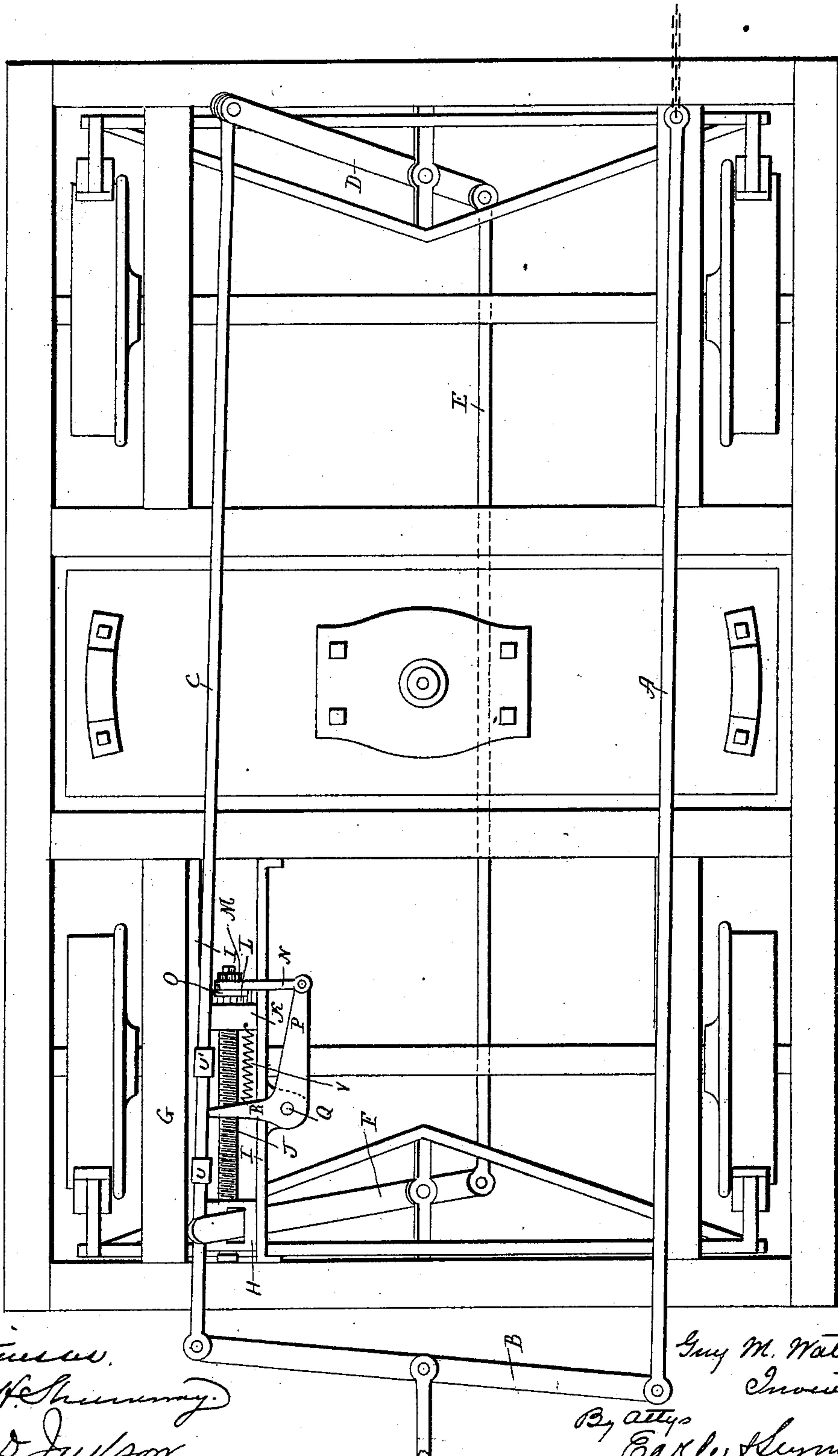
2 Sheets—Sheet 1.

G. M. WATSON.
SLACK ADJUSTER FOR BRAKE GEAR.

No. 601,918.

Patented Apr. 5, 1898.

Fig. 1



Witnesses.
J. H. Shumway
W. D. Johnson

Guy M. Watson,
Inventor.
By attys
Earle Seymour

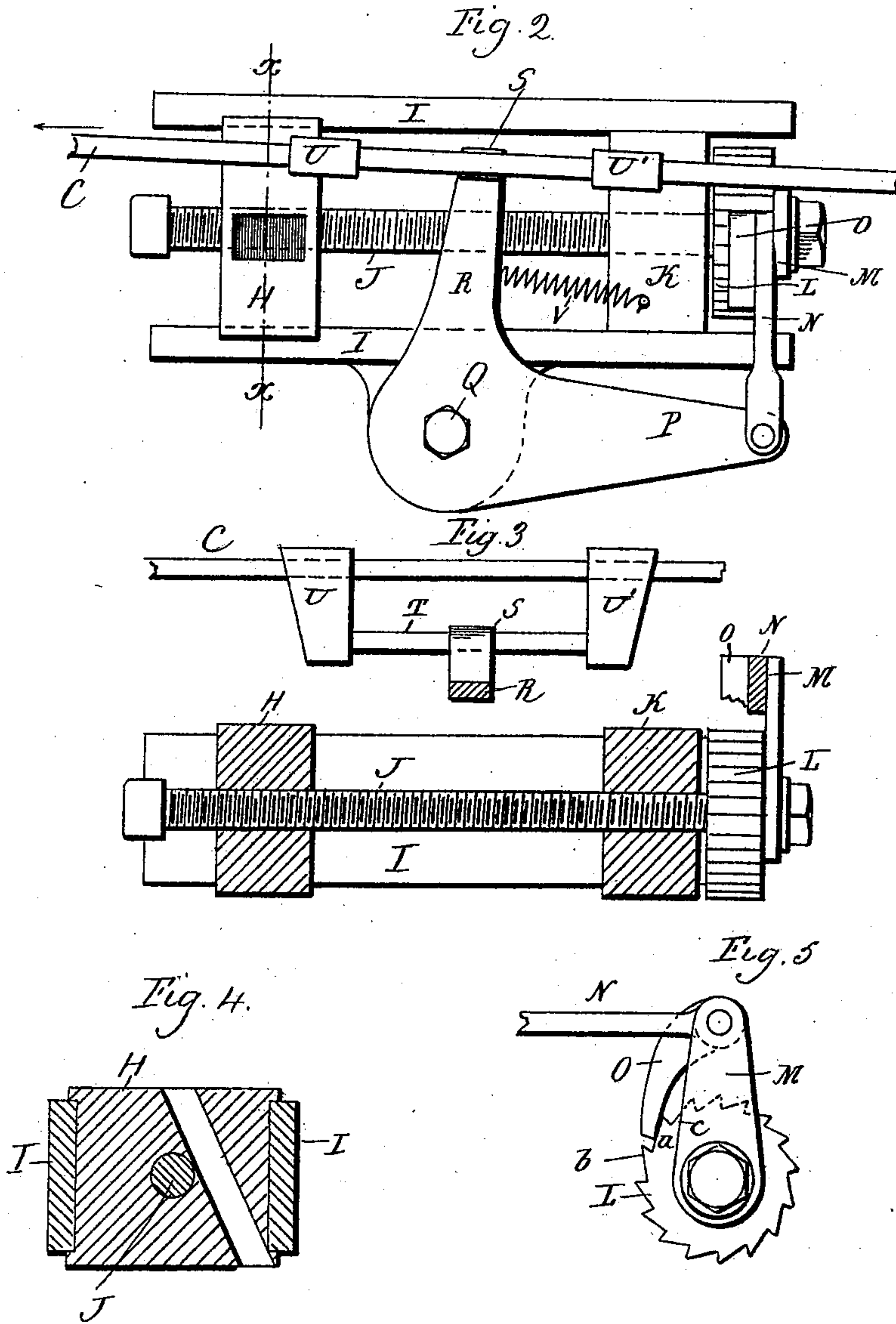
(No Model.)

2 Sheets—Sheet 2.

G. M. WATSON.
SLACK ADJUSTER FOR BRAKE GEAR.

No. 601,918.

Patented Apr. 5, 1898.



Witness
J. H. Humphrey
H. S. Johnson

Guy M. Watson,
Inventor.
By atty. Earl Heywood

UNITED STATES PATENT OFFICE.

GUY M. WATSON, OF NEW HAVEN, CONNECTICUT.

SLACK-ADJUSTER FOR BRAKE-GEAR.

SPECIFICATION forming part of Letters Patent No. 601,918, dated April 5, 1898.

Application filed October 25, 1897. Serial No. 656,276. (No model.)

To all whom it may concern:

Be it known that I, GUY M. WATSON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Slack-Adjusters for Brake-Gears; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of a brake mechanism of usual construction and showing my slack-adjusting mechanism in connection therewith; Fig. 2, a top view of the slack-adjusting device; Fig. 3, a vertical section thereof; Fig. 4, a sectional view on the line *xx* of Fig. 2; Fig. 5, an end view of the pawl and ratchet on the end of the adjusting mechanism.

This invention relates to an improvement in devices for taking up the slack of the brake-gear of railway-cars caused by the wearing of the face of the brake-shoe and in the connections between the various parts. Devices for this purpose have been arranged in various ways; but in the majority of cases they are so arranged that as the slack is taken up the levers are thrown out of proper alignment, so that the effectiveness of the brake mechanism is impaired.

The object of this invention is to arrange the adjusting device in connection with the inner end of the dead-lever and so that the lever will be adjusted to compensate for the wear of the brake-shoes and various parts of the brake mechanism; and it consists in attaching the inner end of the dead-lever to an adjusting mechanism, as will be more fully hereinafter described, and particularly recited in the claims.

For convenience of description I have shown my invention as applied to the well-known Westinghouse air-brake, which comprises a pull-rod A, adapted to be operated by the hand brake-wheel on the platform of the car, a floating lever B, which is connected with the air-cylinder, (not shown,) top rod C, live-lever D, bottom rod E, and dead-lever F, all of the usual construction. As usually arranged, the inner end of the dead-le-

ver is connected to the truck-beam G or adjacent portion of the car. I, however, insert the end of said lever upward into a traveling block H, which is mounted for longitudinal movement between guides I I, which are secured to the truck-beam G. This block is interiorly threaded and mounted upon a screw-shaft J, the outer end of which is supported in a block K, fixed between the guides I I, and on the outer end of this shaft is a ratchet-wheel L, having teeth *a b c*, &c., so spaced as to give each a long bearing-face. Pivoted to the end of the shaft is an arm M, to the outer end of which is connected one end of a link N and a pawl O. The other end of the link N is connected with the arm P of a bell-crank lever mounted upon a pivot Q above the plane of the screw-shaft J, over which the other arm R of the bell-crank lever extends to a point beneath the top rod C. The end of this arm R is provided with a loop S, through which extends a traveler T, which is supported by clips U U' from the said top rod C, with which the traveler T is parallel, and so that as the top rod moves back and forth the clips U U' will engage with opposite sides of the loop S and so as to move the bell-crank lever. To maintain the said bell-crank lever in its normal position, I connect the arm R with the block K by a spring V. When brakes are applied, the top rod C moves in the direction of the arrow in Fig. 2 and causes the clip U' to strike the loop S and so move the bell-crank lever R rearward and cause the arm P to move the link, and hence cause the pawl O to ride upward over the surface of one of the teeth, as *a*, of the ratchet L. When the brakes are released and the rod C moves forward, the bell-crank lever is released, and under the continued rearward movement of the said top rod the clip U strikes the loop S and moves it forward, thereby moving the arms of the bell-crank lever, so as to cause the arm P to draw upon the link and so as to force the nose of the pawl O downward, over the face of the tooth *a* of the ratchet-wheel O, against the end of the next tooth *b*, and in the usual operation of the device the screw-shaft J, with which the ratchet is connected, will not be turned. If, however, the brake-shoes or other part have become worn, the rearward movement

of the top rod C will move the bell-crank lever to such an extent as to cause the nose of the pawl O to pass over the end of the tooth *a* onto the face of the tooth *c* and so that on the return movement the pawl, engaging with the end of the tooth *a*, will turn the ratchet, thereby turning the screw-shaft J, and hence moving the traveling block H forward and so change the location of the end of the dead-lever. With air-brakes the movement of the top rod C in both directions is positive, so that the spring V is not absolutely essential, although desirable; but as the brakes are sometimes operated through the pull-rod A and without brake-opening the spring will be required, and for this purpose should be of sufficient strength to so draw upon the bell-crank lever as to operate the screw-shaft J. When new brake-shoes are employed, the traveling block H, to which the end of the dead-lever is attached, is moved backward by the reverse movement of the screw-shaft and so that the parts are adjusted to proper operating position.

It will thus be seen that the adjusting device is simple in its construction, automatic and positive in its operation, and effectually adjusts the dead-lever so as to compensate for all wear in the brake mechanism.

While, as before stated, the invention has been shown and described in connection with the Westinghouse brake mechanism, it is apparent that it is applicable to other styles of brake mechanism in which similar levers, including a dead-lever, are employed and that with such other brake mechanisms the device may be differently located without departing from my invention, the essential feature of which is a slack-adjusting device in connection with the dead-lever.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with brake mechanism including a dead-lever and a top rod, of a block to which the inner end of said dead-lever is secured a screw-shaft upon which said block is mounted, and connections between said top rod and screw-shaft, whereby move-

ment of the top rod imparts movement to said shaft, and so as to adjust the position of the inner end of said dead-lever, substantially as described.

2. In combination with brake mechanism including a dead-lever and a top rod, of a block to which the inner end of said dead-lever is secured, a screw-shaft upon which said block is mounted, a bell-crank lever adapted to be turned by the movement of said top rod, and connections between said top rod, bell-crank lever and screw-shaft whereby movement of the top rod imparts movement to said shaft, and so as to adjust the position of the inner end of said dead-lever, substantially as described.

3. In combination with brake mechanism comprising a dead-lever and a top rod, of a slack-adjuster consisting of a block to which the inner end of said dead-lever is secured, a screw-shaft upon which said block is mounted for transverse movement, a ratchet on the outer end of said screw-shaft, a pawl mounted for engagement with said ratchet, and a bell-crank lever engaged with said pawl and adapted to be turned by the movement of said top rod, substantially as described.

4. A slack-adjuster for brake-gear, consisting of guideways, a block mounted between said ways upon a screw-shaft, a ratchet fixed to the outer end of said screw-shaft, an arm also mounted on said shaft and carrying a pawl, the nose of which engages with the teeth of said ratchet, a link connected with the outer end of said arm and with one arm of a bell-crank lever mounted upon a pivot above said screw-shaft the other arm of said lever extending over said screw-shaft, and so that movement imparted to said bell-crank lever in one direction will revolve said screw-shaft and thereby move the block thereon, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUY M. WATSON.

Witnesses:

FRED. C. EARLE,
LILLIAN D. KELSEY: